

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-32. (Cancelled).

33. (Currently Amended) A method of treating arthritis, muscular dystrophy, multiple sclerosis, arteriosclerosis, autoimmune disease, ischemia-reperfusion injury, myocardial infarction, or stroke ~~inhibiting apoptosis~~ in a subject in need of such a treatment, said method comprising: inhibiting apoptosis in the subject by administering a therapeutically effective amount of  $\alpha_1$ -antitrypsin, an oxidation-resistant  $\alpha_1$ -antitrypsin Met<sup>358</sup> variant or a free radical-resistant  $\alpha_1$ -antitrypsin M<sup>358</sup> variant.

34. (Previously Presented) The method of Claim 33, wherein the effective amount is at least 0.001 g/kg body weight and no greater than 70 g/kg body weight.

35. (Previously Presented) The method of Claim 33, further comprising administering at least one free radical scavenger or inhibitor.

36. (Previously Presented) The method of Claim 33, in which the subject is a human.

37. (Previously Presented) The method of Claim 33, in which the therapeutically effective amount is sufficient to provide at least 10 pM and no greater than 2 mM of the inhibitor in the biological fluid of the subject.

38. (Previously Presented) The method of Claim 37, in which the biological fluid is blood.

39. (Previously Presented) The method of Claim 37, in which the therapeutically effective amount is sufficient to provide at least 0.5  $\mu$ M and no greater than 2000  $\mu$ M in the biological fluid of the subject.

40. (Previously Presented) The method of Claim 33, in which the administering is parenterally, orally, vaginally, rectally, nasally, buccally, intravenously, intramuscularly, subcutaneously, intrathecally, epidurally, transdermally, intracerebroventricularly, by osmotic pump, by inhalation, or combinations thereof.